Math 1314 Review 2

Find the slope of the line passing through the given pair of points.(1-3)

1. $(3,2),(5,1)$ **2.** $(-2,2),(-2,1)$ **3.** $(3,\frac{1}{4}),(5,\frac{1}{4})$

Write an equation for the line that satisfies the given conditions.(4-7)

4. Passes through $(-3,2)$ with slope -6. **5.** Passes through $(1,6),(-1,2)$.

6. Passes through $(4,-7)$ and parallel to the line with equation $3x+y-9=0$.

7. Passes through $(-3,6)$ and perpendicular to the line with equation $y=\frac{1}{3}x+4$.

Find the slope and y-intercept of the following lines.(8-10)

8. $y=\frac{2}{5}x-1$ **9.** $2x+3y+6=0$ **10.** $3x-9=0$

Use the graph of the function f to graph the following functions. Use the graph you get to determine the domain and range of the given function.(11-16)
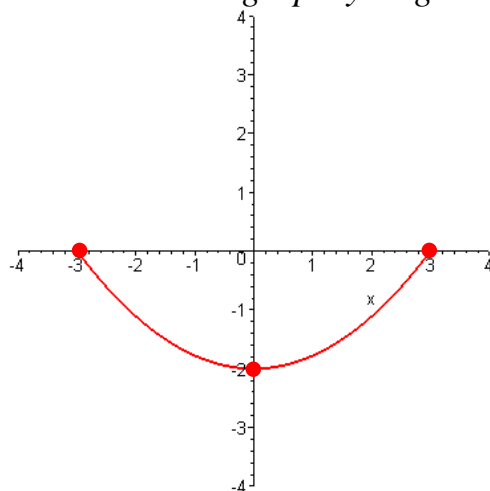
11. $g(x)=f(x+2)+3$ **12.** $h(x)=\dfrac{1}{2}f(x-1)$

13. $j(x)=-f(2x)$ **14.** $k(x)=2f\left(\frac{1}{2}x\right)$

15. $l(x)=-f(-x)-1$ **16.** $m(x)=|f(x)|$

Start with the graph of the square root function, $f(x)=\sqrt{x}$, and use transformations to graph the given function. Use the graph you get to determine the domain and range of the given function.(17-20)

17. $g(x)=\sqrt{x+3}$ **18.** $h(x)=\sqrt{3-x}$ **19.** $j(x)=2\sqrt{x+2}$ **20.** $k(x)=-\sqrt{x-2}$

Express the domain of the following functions using interval notation, if possible.(21-24)

21. $f(x)=\dfrac{4}{x-7}$ **22.** $g(x)=\sqrt{8-2x}$ **23.** $h(x)=\dfrac{\sqrt{x-2}}{x-5}$ **24.** $j(x)=\sqrt{1-x}+\sqrt{x+5}$

25. For $f(x)=x^2-2x+1$ and $g(x)=x-1$, find $f+g, f-g, fg, \dfrac{f}{g}, f\circ g$, and $g\circ f$; simplify whenever possible.

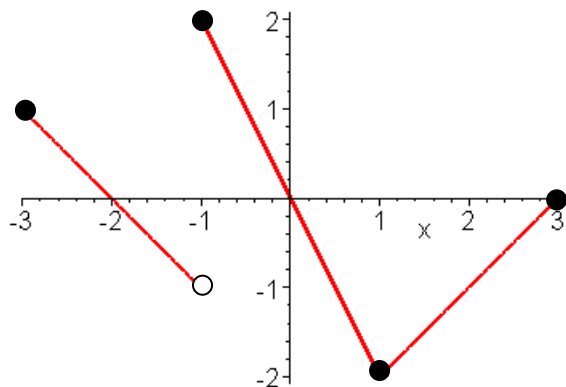**26.** Find a formula for $f^{-1}(x)$ for the following one-to-one functions.

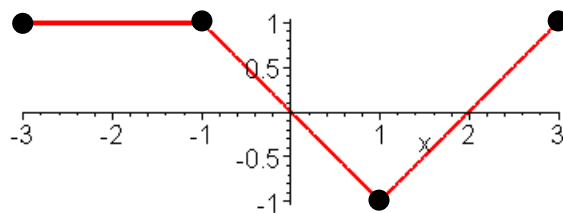 **a)** $f(x)=4x-3$ **b)** $f(x)=8x^3+1$ **c)** $f(x)=\dfrac{2}{x}+5$

27. Using the graphs of the functions f and g, which consist of line segments, answer the following:
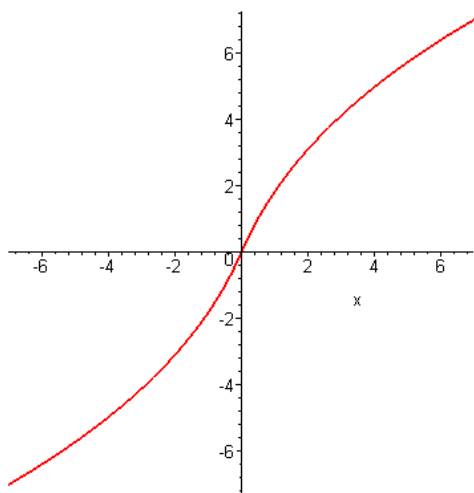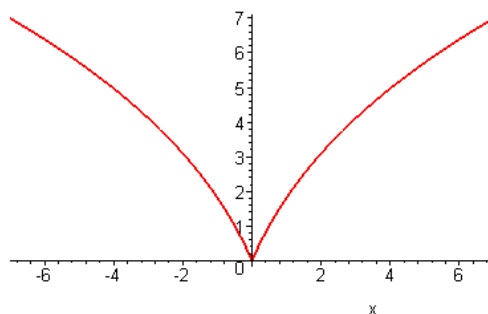
Graph of f

Graph of g

a) $(f+g)(-1)$ **b)** $(f-g)(1)$ **c)** $(fg)(2)$ **d)** $\left(\dfrac{f}{g}\right)(0)$ **e)** Solve $f(x)g(x)=0$.

f) $(f \circ g)(-1)$ **g)** $(g \circ f)(-1)$ **h)** $(f \circ g \circ f)(-3)$ **i)** Solve $(f \circ g)(x)=2$.

Use the horizontal line test to determine if the graph is of a function which has an inverse function.(28-29)

28.

29.

30. Graph the piecewise defined function $f(x)=\begin{cases} x^2-1; x<-1 \\ \sqrt{x+1}; -1 \le x \le 3 \\ -x \ ; x>3 \end{cases}$.